Abstract

The present invention relates to a rear-projection screen encompassing at least one light-scattering polymethyl methacrylate layer, which comprises a polymethyl methacrylate matrix and spherical scattering particles (A) and spherical particles (B) with a different median particle size V_{50}, where the spherical scattering particles (A) have a median size V_{50} in the range from 0.1 to 40 µm, the difference between the refractive index of the spherical scattering particles (A) and that of the polymethyl methacrylate matrix being in the range from 0.02 to 0.2, where the spherical particles (B) have a median size V_{50} in the range from 10 to 150 µm, the difference between the refractive index of the spherical particles (B) and that of the polymethyl methacrylate matrix being in the range from 0 to 0.2, and where the total concentration of the spherical scattering particles (A) and particles (B) is in the range from 1 to 60% by weight, based on the weight of the light-scattering polymethyl methacrylate layer, where the concentration of the spherical scattering particles (A) c_{PA}, the thickness of the light-scattering polymethyl methacrylate layer d_S and the size of the spherical scattering particles (A) D_{PA} is selected in such a way that the ratio $c_{PA}{}^{*}d_S/D_{PA}{}^3$ is in the range from 0.001 to 0.015% by weight* mm/µm^3, the concentration of the spherical particles (B) c_{PB}, the thickness of the light-scattering polymethyl methacrylate layer d_S and the size of the spherical particles (B) D_{PB} is selected in such a way that the ratio $c_{PB}{}^{*}d_S/D_{PB}{}^3$ is in the range from 0.000005 to 0.002% by weight* mm/µm^3 and the ratio of the square of average surface roughness of the polymethyl methacrylate layer R_Z to the third power of the size of the spherical particles (B) $R_Z{}^2/D_{PB}{}^3$ is in the range from 0.0002 to 0.1300 µm^{-1}.